Reply to Office Action of November 29, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:** 

1. (Currently Amended) A parts suction head of a surface mount device,

comprising:

a motor configured for generating to generate a rotary force and transmitting to

transmit the rotatory force to a rotation-motor shaft positioned along a central axis of the

motor;

a ball spline unit configured for performing a rotation movement and a vertical

reciprocation movement byto rotate and to reciprocate vertically in response to the rotary force

generated from by the motor;

a rotation shaft unit comprising a rotation shaft, wherein the rotation shaft unit is

configured to be moved in a vertical direction and to be rotated for sucking or mounting parts;

and

a plurality of couplings, comprising a first coupling configured for transmitting to

connect an end of the motor shaft to a first end portion of the ball spline unit so as to transmit

the rotary force of the rotation central axis from the motor shaft to the ball spline unit, and for

transmittinga second coupling configured to transmit a rotary force of from the ball spline unit

to the rotation shaft unit.

Serial No. 10/020,937

Amdt. Dated February 17, 2005

Reply to Office Action of November 29, 2004

Docket No. MRE-0047

2. (Currently Amended) The parts suction head of claim 1, wherein the plurality of

couplings comprise:a first coupling configured for connecting the rotation central axis of the

motor to a first end portion of the ball spline unit; and a second coupling is configured for

connecting to connect a second end portion of the ball spline unit to the rotation shaft unit.

3. (Currently Amended) The parts suction head of claim 2, wherein a first end

portion of the ball spline unit comprises a ball spline nut and the first coupling is connected

between the rotation central axis of the motor shaft and the ball spline nut to maintain a

predetermined distance m between the rotation central axis an end of motor shaft and the ball

spline nut.

4. (Previously Presented) The parts suction head of claim 2, wherein the second

coupling is configured to maintain a predetermined distance m between the second end of the

ball spline unit and the rotation shaft unit.

5. (Currently Amended) The parts suction head of claim 1, further comprising a

bearing fixed to the a ball spline nut and of the ball spline unit, wherein the bearing is configured

to restrict a rotation radius of the rotation shaft unit.

Reply to Office Action of November 29, 2004

6. (Previously Presented) A parts suction head, comprising:

a rotation unit;

a ball spline unit;

a first coupling that rotationally couples the rotation unit to a first end of the ball

Docket No. MRE-0047

spline unit;

a rotation shaft configured to rotate and to move vertically in a reciprocal fashion;

and

a second coupling that rotationally couples a second end of the ball spline unit to

the rotation shaft.

7. (Previously Presented) The parts suction head of claim 6, wherein the rotation

unit comprises a motor.

8. (Previously Presented) The parts suction head of claim 6, further comprising a

bearing mounted on the ball spline unit and configured to hold the ball spline unit in a fixed

position, but to allow the ball spline unit to rotate.

9. (Currently Amended) The parts suction head of claim 8, wherein the bearing is

configured to align a rotational axis of the rotator rotation unit with a rotational axis of the ball

spline unit.

Serial No. 10/020,937

Amdt. Dated February 17, 2005

Reply to Office Action of November 29, 2004

10. (Previously Presented) The parts suction head of claim 6, wherein the first end of

Docket No. MRE-0047

the ball spline unit comprises a ball spline nut, and the second end of the ball spline unit

comprises a splined shaft.

11. (Previously Presented) The parts suction head of claim 10, further comprising a

bearing mounted on the ball spline nut and configured to hold the ball spline nut in a fixed

position, but to allow the ball spline nut to rotate.

12. (Previously Presented) The parts suction head of claim 6, wherein the first

coupling is configured to separate a lower end of the rotation unit from an upper end of the ball

spline unit by a prescribed distance.

13. (Previously Presented) The parts suction head of claim 6, wherein the second

coupling is configured to separate a lower end of the ball spline unit from an upper end of the

rotation shaft by a prescribed distance.

14. (Previously Presented) The parts suction head of claim 6, wherein the second

coupling is configured to allow the rotation shaft to be detached from the ball spline unit.